NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

DAM, FLOODWATER RETARDING

(no.)
CODE 402

DEFINITION

A single-purpose dam designed for temporary storage of floodwater and for its controlled release.

PURPOSE

To reduce flood damages downstream by controlling the release rate from flood flows of predetermined frequencies. They may also permit the use of more economical channel modifications or stabilizing structures in the channel downstream and reduce environmental hazards and pollution.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to sites meeting all the following conditions:

Topographic, geologic, and soils conditions at the proposed site are satisfactory for the development of a feasible dam and reservoir;

The sediment yield at the site is not excessive;

Special attention shall be given to maintaining habitat for fish and wildlife.

CRITERIA

Laws and Regulations. This practice must conform to all federal, state, and local laws and regulations. Laws and regulations of particular concern include those involving water rights, land use, land disturbed by construction, pollution control, property easements, wetlands, preservation of culture resources, and endangered species.

General. All dams designed under this standard shall meet or exceed the criteria in the standard for Ponds (378) or in TR-60, as appropriate, except as specifically modified by this standard.

The capacity of the principal spillway shall be adequate to discharge, in 10 days or less, the floodwater storage needed to provide the desired level of protection to the downstream benefited area. Storage provided primarily for the purpose of reducing the frequency of use of the emergency spillway need not be included in this 10-day drawdown limitation. The determination of capacity must be based on consideration of the benefits that accrue to the reduction in the discharge rate, damages that may result from prolonged storage in the retarding pool, damages that may result from prolonged outflow, and limitations in water rights or other legal requirements. Longer release times may be used if warranted by downstream conditions. This discharge through gated outlets shall not be considered in determining the emptying time of the retarding pool.

The riser shall be designed to permit design discharge at the sediment pool elevation with provisions for discharging water at lower elevations as needed.

All parts of the principal spillway shall have an expected service life equal to or greater than the design life of the structure or provisions made for replacement. Principal spillways shall meet the requirements with respect to materials established in the standard for Pond (378) or in TR-60, as appropriate.

The minimum diameter of the conduit used as a principal spillway shall be 10 in.

The storage volume shall not be less than retarding storage plus the expected sediment accumulation during a period equal to the design life.

Retarding storage requirements shall contain the runoff expected to occur at a frequency consistent with the level of protection to be provided to the downstream benefited area, with proper allowance for discharge through

the principal spillway. The retarding storage capacity shall be sufficient to limit use of the emergency spillway to a permissible frequency and duration based upon consideration of the erosion resistance of the spillway material and vegetative protection to be provided.

CONSIDERATIONS

Consider effects on downstream water quality, temperature, duration and volume of flow. Consider runoff, evaporation from the reservoir surface, and seepage from the pool bottom.

PLANS AND SPECIFICATIONS

Plans and specifications for installing floodwater retarding dams shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be prepared for use by the owner/operator. The plan shall provide specific instructions for operating and maintaining the system to insure that it functions properly. The plan shall also provide for periodic inspection and repair or replacement of damage.